



**SC B1** Insulated  
Cables **2010 SESSION**



# **B1 DISCUSSION GROUP MEETING**

**CONTRIBUTION ORDER**



# PS1 – Q1



- For some range of power to transmit, it appears that HVAC is a good solution, even for very long cable systems.(100 to 120 km). What are the areas in terms of power/voltage/length which are technically achievable with conventional HVAC cables systems?

NAME	COUNTRY	Allowed time (min)
<u>JEROENSE</u>	SE	3
<u>NAKAJIMA</u>	JP	3
<u>KARABOLAD</u>	BR	3
<u>BRAKELMANN</u>	DE	3
<u>COLLA</u>	Invited contribution	
DORISON	FR	Spontaneous
BRAKELMANN	DE	Spontaneous
ZENGER	US	Spontaneous
BRAKELMANN	DE	Spontaneous
GREGORY	UK	Spontaneous



# PS1 – Q2



- Two papers are describing HVDC submarine links at a voltage below 250 kV. One system is using MI insulation while the other one is extruded. What is the technical state of the art of extruded DC cable systems: Voltages, stresses, temperatures and experiences of operation? What are the trends?



# PS1 – Q2

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<b>NAME</b>	<b>COUNTRY</b>	<b>Allowed time (min)</b>
<u>COURSET</u>	FR	3
<u>KATAKAI</u>	JP	3
<u>LOWRY</u>	IE	3
<u>WORZYK</u>	SE	3
<u>KIM</u>	KR	3
<u>SUTTON</u>	UK	3
<u>MARELLI</u>	IT	3
PETZOLD	DE	Spontaneous
ZACCONE	IT	Spontaneous
MASHIO	JP	Spontaneous
ZENGER	US	Spontaneous
JEROENSE	SE	Spontaneous
WORZYK	SE	Spontaneous
MARELLI	IT	Spontaneous
BOONE	NL	Spontaneous
MARELLI	IT	Spontaneous



# PS1 – Q3



- Some issues regarding global behaviour of large cable systems installed in tunnel has been addressed in one paper, calling for further work on standards. Are there other issues to be covered, especially when a cable system installed in a tunnel is connecting a large generator to the network, for example in nuclear power plants?

NAME	COUNTRY	Allowed time (min)
<u>DORISON</u>	IEC	3
<u>TSUCHIYA</u>	JP	3
<u>DE WILD</u>	NL	3
<u>BRAKELMANN</u>	DE	3
<u>MOREAU</u>	FR	3
DUBOIS	FR	Spontaneous
COLLA	IT	Spontaneous
MOREAU	FR	Spontaneous
GREGORY	UK	Spontaneous
BOONE	NL	Spontaneous



# PS1 – Q4



- Tests combined to Finite Elements calculations show that current rating calculations according to IEC 60287 for armoured 3core cables can lead to conservative results, potentially resulting in oversized cables. What are the (other) areas to be explored to better optimize the sizing and the cost of submarine and land cable systems?

NAME	COUNTRY	Allowed time (min)
<u>DORISON</u>	FR	3
<u>MASHIO</u>	JP	3
<u>BREMNES</u>	NO	3
<u>Ms BOSSE</u>	DE	3
BRAKELMANN	DE	Spontaneous
COLLA	IT	Spontaneous
MASHIO	JP	Spontaneous
LLYOD	UK	Spontaneous
WILLEN	DK	Spontaneous
BREMNES	NO	Spontaneous



# PS1 – Q5



- What has been learnt to date regarding the installation and operation of High Temperature Superconducting Cable systems (including pilot installations of cables)?

NAME	COUNTRY	Allowed time (min)
<u>MASUDA</u>	JP	3
<u>WILLEN</u>	DK	3
<u>T. OKAMOTO</u>	JP	3
<u>MONTANARI</u>	Invited presentation	10
SCHMIDT	DE	Spontaneous
WILLEN	DK	Spontaneous
BERGIN	IE	Spontaneous
WILLEN	DK	Spontaneous
MASUDA	JP	Spontaneous
SCHMIDT	DE	Spontaneous



# PS2 – Q1



- Papers in 2008 and 2010 Sessions indicate how the design of the cable can determine the environmental impact of a cable system during the whole service life of the system. **Are there similar studies made and what are the results?**

NAME	COUNTRY	Allowed time (min)
<u>BRÜGGMANN</u>	DE	3
SMIT	NL	Spontaneous



# PS2 – Q2



- « Events » on HV/EHV underground cables and faults are the main topic of B1 202. **What are the other aspects of a fault in underground lines which have to be taken into account in the design of an underground line? Are these issues well covered by standards and Cigre documents?**

NAME	COUNTRY	Allowed time (min)
<u>Ms PEIXOTO</u>	BR	3
<u>MURUGAN</u>	IN	3
<u>G. OKAMOTO</u>	JP	3
<u>Ms LOUREDO</u>	BR	3
CHERUKUPALLI	CA	Spontaneous
MASHIO	JP	Spontaneous



## PS2 – Q3

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- One paper outlines the upgrading of an existing line as being the optimal solution to reduce the environmental impact of a project, compared with simple replacement. **Are there tools and related criteria to mention to help in decision making regarding both distribution and transmission systems? Are there different experiences in upgrading existing lines?**



# PS2 – Q3

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<b><u>TSUCHIYA</u></b>	<b>JP</b>	<b>3</b>
<b><u>BOONE</u></b>	<b>NL</b>	<b>3</b>
<b><u>LOPES</u></b>	<b>BR</b>	<b>3</b>
<b><u>SVEJDA</u></b>	<b>AT</b>	<b>3</b>
<b>SCHUFFT</b>	<b>DE</b>	<b>Spontaneous</b>
<b>BERGIN</b>	<b>IE</b>	<b>Spontaneous</b>
<b>BOONE</b>	<b>NL</b>	<b>Spontaneous</b>
<b>LOPES</b>	<b>BR</b>	<b>Spontaneous</b>
<b>SCHUFFT</b>	<b>DE</b>	<b>Spontaneous</b>
<b>ORTON</b>	<b>CA</b>	<b>Spontaneous</b>
<b>ZENGER</b>	<b>US</b>	<b>Spontaneous</b>
<b>AGRAWAL</b>	<b>IN</b>	<b>Spontaneous</b>
<b>BOONE</b>	<b>NL</b>	<b>Spontaneous</b>



# PS2 – Q4



- What are the new considerations between AC and DC transmission solutions in terms of System/Network design and transmitted power versus length taking into account the increasing performances of DC extruded cables (VSC and LCC), the upcoming recommendations from CIGRE for testing DC cable systems, and utilizing state-of-the-art compensation devices for long AC transmissions?

NAME	COUNTRY	Allowed time (min)
<u>ZACCONE</u>	IT	3
<u>EGROT</u>	FR	3
<u>MIREBEAU</u>	FR	3
ECKROAD	US	Spontaneous
MIREBEAU	FR	Spontaneous
CHERUKUPALLI	CA	Spontaneous
ZACCONE	IT	Spontaneous
EGROT	FR	Spontaneous
SWINGLER	UK	Spontaneous



# PS3 – Q1



- What is the experience collected worldwide with very low frequency testing? Can this testing technique be accepted as field testing for diagnosis purposes, eventually combined with other techniques? In which voltage range?

NAME	COUNTRY	Allowed time (min)
<u>BOONE</u>	NL	3
<u>Ms PEIXOTO</u>	BR	3
<u>Ms TSUJI</u>	JP	3
<u>GULSKI</u>	NL	3
<u>PIETSCH</u>	DE	3
<u>WIECHOWSKI</u>	Invited presentation	10
PETZOLD	DE	Spontaneous
ZENGER	US	Spontaneous
BHUMIWAT	NZ	Spontaneous
SUNNEGARDH	SE	Spontaneous



# PS3 – Q2



- Extension of qualification issues have been addressed by WG B1.06 in Technical Brochure 303. Range of approval of PQ test and Type Tests are well defined. Despite this, many specifications call for Long Term testing in actual installation configuration of a given cable system. **Are there any technical reasons to repeat such tests, when this is not required by IEC and Cigre recommendations, considering their high costs? Is there a need for tests differing from the existing ones?**

NAME	COUNTRY	Allowed time (min)
<u>JEROENSE</u>	SE	3
<u>MIREBEAU</u>	FR	3
<u>Ms TSUJI</u>	JP	3
<u>DORISON</u>	FR	3
AGRAWAL	IN	Spontaneous
MIREBEAU	FR	Spontaneous
GREGORY	UK	Spontaneous



# PS3 – Q3



- Multiple examples of Cable systems Dynamic Rating have been given. **Are the needs of Utilities regarding the use of DTR collected and expressed? Is there a need to establish recommendations or standards in this area?**

NAME	COUNTRY	Allowed time (min)
<u>DE WILD</u>	NL	3
<u>MASHIO</u>	JP	3
<u>NAM</u>	KR	3
GASPARI	IT	Spontaneous
CHERUKUPALLI	CA	Spontaneous



# PS3 – Q4



- PD measurement with sensitivity of 5 pC in a background noise of 200 pC is said to be achievable. **Is there any assessment of the time available for repair or replacement before failure, when an accessory shows such a level of partial discharges at operating voltage ?**

NAME	COUNTRY	Allowed time (min)
<u>PULTRUM</u>	NL	3
<u>TANAKA</u>	JP	3
CHERUKUPALLI	CA	Spontaneous
TANAKA	JP	Spontaneous
MIREBEAU	FR	Spontaneous